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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/762,211	03/29/2001	Steinar Lynum	84-472	2894

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EXAMINER

JOHNSON, EDWARD M

ART UNIT	PAPER NUMBER
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1754

DATE MAILED: 05/21/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

AS-7

Office Action Summary

Application No.

09/762,211

Applicant(s)

LYNUM ET AL.

Examiner

Edward M. Johnson

Art Unit

1754

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 24 May 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-11 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-3 and 7-9 is/are rejected.
- 7) ☒ Claim(s) 4-6, 10 and 11 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 5,6.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Specification

1. The abstract of the disclosure is objected to because in line 2, the British "characterised" is used. Examiner suggests -characterized-- . Correction is required. See MPEP § 608.01(b).

Claim Objections

2. Claims 4-6 and 10-11 are objected to under 37 CFR 1.75(c) as being in improper form because a multiple dependent claim must list the claims it depends from in alternative form and must not depend from another multiple dependent claim. See MPEP § 608.01(n). Accordingly, the claims have not been further treated on the merits.

3. Claims 1-3 and 7-9 are objected to because of the following informalities: They use the British form "characterised". Examiner suggests --comprising-- or --the improvement comprising--, if a Jepson-type claim is intended; Claim 1, line 2, "comprises a" appears incorrect. Examiner suggests deletion of "a"; Claim 8, lines 2-3, "which have been" appears incorrect. Examiner suggests deletion. Appropriate correction is required.

Claim Rejections - 35 USC § 112

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

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The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5. Claims 1-3 and 7-9 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 1, line 5, "the hydrocarbon is" appears incorrect and/or lacks antecedent basis. Examiner suggests --the hydrocarbons are--.

Claims 1-3 and 7-9 are unclear as to whether a Jepson-type claim is intended. Examiner suggests deletion of "characterised in that" and --comprising-- or --the improvement comprising--, if a Jepson-type claim is intended.

Claim 1, line 6, "the plasma arc zone" lacks antecedent basis.

Claim 1, line 7, "the plasma gas" lacks antecedent basis. Examiner suggests --the plasma arc--.

Claim 1, line 7, "the process parameters" lacks antecedent basis.

Claim 1, line 14, "the intense heat" lacks antecedent basis.

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Claim 2 appears to contain an improper Markush group. Examiner suggests replacing "chosen from the group comprising" with "--selected from the group consisting of--".

Claim 3, "the domain size" and "the graphitic stacking direction" both lack antecedent basis.

Claim 8, line 4, "the intense heat" lacks antecedent basis.

Claim Rejections - 35 USC § 102

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless -

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

7. Claims 1-2 and 8-9 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Bunshah et al. US 5,316,636.

Regarding claims 1 and 8, Bunshah '636 discloses fullerenes produced by RF excitation of plasma from a carbon source (see title, abstract, and column 7, lines 23-30).

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Regarding claim 2, Bunshah '636 discloses fullerenes (title).

Regarding claim 9, Bunshah '636 discloses a carbon soot (see abstract)

8. Claims 1-2 and 8-9 are rejected under 35 U.S.C. 102(e) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Fields et al. US 6,077,401.

Regarding claims 1 and 8, Fields '401 discloses production of fullerenes by combustion of hydrocarbons such as benzene to produce soot and plasma vaporization of the soot (see column 4, lines 1-18).

Regarding claim 2, Fields '401 discloses fullerenes (title).

Regarding claim 9, Fields '401 discloses a carbon soot from combustion of hydrocarbons (see abstract and column 4, lines 1-18).

9. Claims 1-2 and 8-9 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Rodriguez et al. US 5,653,951.

Regarding claims 1 and 8, Rodriguez '951 discloses production of carbon nanotubes for hydrogen storage (see abstract, Examples) comprising treatment in plasma (see column 7, lines 23-26).

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Regarding claim 2, Rodriguez '951 discloses nanotubes (abstract).

Regarding claim 9, Rodriguez discloses solid carbon and graphite (see column 3, lines 48-66).

10. In the event any differences can be shown for the product of the product-by-process claims 1-2 and 8-9, as opposed to the product taught by Bunshah '636, Fields '401, and/or Rodriguez '951, such differences would have been obvious to one of ordinary skill in the art at the time the invention was made as a routine modification of the product in the absence of a showing of unexpected results; see also In re Thorpe, 227 USPQ 964 (Fed.Cir. 1985).

Allowable Subject Matter

11. Claim 7 would be allowable if rewritten or amended to overcome the rejection(s) under 35 U.S.C. 112, second paragraph, set forth in this Office action.

12. Claim 3 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, second paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

13. The following is a statement of reasons for the indication of allowable subject matter: A domain size smaller than 5 microns and thickness of less than 100 nm in the carbon media of

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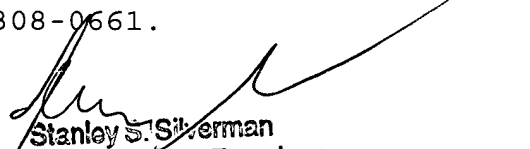
the instant claim 2 would not have been obvious to one of ordinary skill in the art at the time the invention was made. Total disclination degrees of 60 and/or 120 degrees in the carbon media of the instant claim 7 also would not have been obvious to one of ordinary skill in the art at the time the invention was made.

Conclusion

14. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Edward M. Johnson whose telephone number is 703-305-0216. The examiner can normally be reached on M-F 6:30-4:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stanley S. Silverman can be reached on 703-308-3837. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9310 for regular communications and 703-872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0661.


Stanley S. Silverman
Supervisory Patent Examiner
Technology Center 1700

EMJ
May 14, 2003